Normal Checklists — Chapter NC

PREFLIGHT

Oxygen ..... Test, **100%**
Flight instruments ..... Heading ___, Altimeter ___
Parking brake ..... Set
Fuel control switches ..... **CUTOFF**

RVSM CHECK

FLT PLAN "W" ..... Re-confirm
TCAS ..... Normal
Auto Pilot ALT holding ..... Normal
Alt indication error ..... Check, verify its accuracy
ALT warning ..... Check

BEFORE START

Passenger signs ..... ___
MCP ..... **V2**___, **HDG**___, **ALT**___
Takeoff speeds ..... **V1**___, **VR**___, **V2**___
CDU preflight ..... Completed
Trim ..... ___ Units, **0**, **0**
Taxi and takeoff briefing ..... Completed
Beacon ..... **BOTH**

BEFORE TAXI

Anti-ice ..... ___
Recall ..... Checked
Autobrake ..... **RTO**
Flight control ..... Checked
Ground equipment ..... Clear

BEAFORE TAKE OFF

Flaps ..... ___

AFTER TAKEOFF

Landing Gear ..... UP and OFF
Flaps ..... **UP**

DECENT

Recall ..... Checked
Autobrake ..... ___
Landing date ..... **VREF**___, Minimums___
Approach briefing ..... Completed

Befor enter RVSM space

Master Alt Indication error no more than ±200feet（60 meters）
.....Normal
Alt Holding error no more than ±150feet（45meters）
.....Normal
Alt Warning error no more than ±200feet（60 meters）
.....Normal
TCAS .....Normal
Auto Pilot .....Normal

APPROACH

Altimeters ..... ___

LANDING

Speedbrake .....Armed
Landing gear..... **DOWN**
Flaps ..... ___

SHUTDOWN

Hydraulic panel ..... Set
Fuel pumps .....Off
Flaps ..... **UP**
Parking brake..... ___
Fuel control switches ..... **CUTOFF**
Weather radar.....Off

SECURE

IRS ..... **OFF**
Emergency exit lights ..... **OFF**

Table of Contents

Table of Contents

CABIN ALTITUDE or Rapid Depressurization

Condition: A cabin altitude exceedance occurs.

1 Don the oxygen masks.

2 Establish crew communications.

3 Check the cabin altitude and rate. Verify packs are on and outflow valves are closed.

4 **If** the cabin altitude is uncontrollable:

SUPRNMRY OXY switch .....ON

Without delay, descend to the lowest safe altitude or 14,000 feet, whichever is higher.

To descend:

Move the thrust levers to idle.

Extend the speedbrakes.

If structural integrity is in doubt, limit airspeed and high maneuvering loads.

Descend at VMO/MMO.

---

5 **If** OUTFLOW VLV L, OUTFLOW VLV R, **and** CABIN ALT AUTO messages are shown:

Do **not** accomplish the follow checklists:

CABIN ALT AUTO

OUTFLOW VLV L, R

BLD DUCT LEAK L, C, R

Condition: A bleed air leak occurs in the left, center, or right duct.

Objective: To isolate the bleed duct leak.

1 Choose one:

- **BLD DUCT LEAK C** message is shown:
  - ►►**Go to step 2**
- **BLD DUCT LEAK L** or **R** message is shown:
  - ►► **Go to step 12**

2 ISLN valve switches (both) ..... Off

3 PACK 2 control selector ..... OFF

4 APU selector ..... OFF

5 AFT CARGO HT switch ..... Off

6 TRIM AIR switch ..... Off

7 FLT DECK TEMP selector ..... Set

8 Cargo smoke detection is no longer available.

9 **Convert Freighter:**

Cargo smoke detection is available.

10 Do not use ground pneumatic air.

11 Do **not** accomplish the follow checklists:

CARGO DET AIR

TEMP ZONE

TRIM AIR OFF

■■■■

▼ Continued on next page ▼

▼ BLD DUCT LEAK L, C, R continued ▼

12 ISLN valve switch (affected side) ..... Off

13 ISLN valve switch (unaffected side) ..... On

14 ENGINE BLEED air switches (affected side) ..... OFF

This isolates the air source and maintains pressure on the unaffected side.

15 PACK control selector (affected side) ..... OFF

16 Hydraulic DEMAND PUMP 1 or 4 selector (affected side) ..... OFF

17 WING ANTI-ICE switch ..... Off

Do not use wing anti-ice.

18 Choose one:

- **At or above** 10,000 feet:

  Sufficient bleed air may not be available for nacelle anti-ice if N1 is less than 70%.

  ►►**Go to step 19**

- **Less than** 10,000 feet:

  Sufficient bleed air may not be available for nacelle anti-ice if N1 is less than 55%.

  ►► **Go to step 19**

19 Do **not** accomplish the following checklists:

BLEED OFF

HYD PRESS DEM 1 OR 4(affected side)

20 **Checklist Complete Except Deferred Items**

▼Continued on next page ▼

▼ BLD DUCT LEAK L, C, R continued ▼

Deferred Items

At top of descent:

PACK control selectors ..... Set a maximum of one pack on

This maintains bleed air extraction within limits.

Descent checklist

Recall ..... Checked

Autobrake ..... ___

Landing data ..... VREF___, Minimums___

Approach briefing ..... Completed

Flap Extension

LE flaps move in secondary mode. During approach, allow additional time for flap extension.

Do **not** accomplish the following checklist:

FLAPS PRIMARY

Note: A temporary LE flap asymmetry, accompanied by a mild rolling moment, results when LE flaps are extended or retracted.

Approach Checklist

Altimeters ..... ___

Caution! Do not deploy the thrust reversers until the nose gear contacts the runway.

▼Continued on next page▼

Landing Checklist

Speedbrake.....Armed
Landing gear.....DOWN
Flaps ..... ___

After landing

Note: If the BLD DUCT LEAK L message is shown, do not shut down engine 1 when towed into a gate. Shutdown engine 1 depressurizes hydraulic system 1 and body gear steering is inoperative. Tight turns may cause tire scrubbing.

■■■■

Additional Information

When the thrust reversers are deployed, the inboard and midspan LE flaps retract, resulting in a LE flap asymmetry. If the thrust reversers are deployed before the nose gear contacts the runway, immediate and significant control wheel input, approximately 25 to 65 detrees, may be need ed to counter the LE flap asymmetry.

BLD 1, 2, 3, 4 OVHT/PRV

Condition: One or more of these occur:

- An engine bleed air overheat.
- An PRV is failed closed.

Nacelle anti-ice is not available for affected engine.

■■■■

SYS FAULT

BLEED 1, 2, 3, 4

Condition: One of these occurs:

- An engine bleed overpressure.
- A high pressure bleed valve failed open.
- An PRV failed open.

Objective: To turn the engine bleed air switch OFF and then determine whether nacelle anti-ice is available.

1 ENGINE BLEED air switch（affected engine） .....OFF

2 NACELLE ANTI-ICE switch（affected engine） ..... ON

3 Choose one:

◆ NAI VALVE message for the affected engine **is shown**:

Nacelle anti-ice for the affected engine is not available.

ANTI—ICE message may be shown.

NACELLE ANTI-ICE switch

（affected engine） ..... Off

►►**Go to step 6**

◆ NAI VALVE message for the affected engine is **not** shown:

►►**Go to step 4**

4 Use the nacelle anti-ice normally.

▼ Continued on next page ▼

▼ BLEED 1, 2, 3, 4 continued ▼

5 Choose one:

- **At or above** 10,000 feet:

  Sufficient bleed air may not be available for nacelle anti-ice if N1 is less than 70%.

  ►►**Go to step 6**

- **Less than** 10,000 feet:

  Sufficient bleed air may not be available for nacelle anti-ice if N1 is less than 55%.

  ►►**Go to step 6**

6 Do **not** accomplish the following checklist:

BLEED OFF

■■■■

BLEED HP ENG 1, 2, 3, 4

Condition: The high pressure bleed valve is failed closed.

1 Choose one:

- **At or above** 10,000 feet:

  Sufficient bleed air may not be available for nacelle anti-ice if N1 is less than 70%.

  ■■■■

- **Less than** 10,000 feet:

  Sufficient bleed air may not be available for nacelle anti-ice if N1 is less than 55%.

  ■■■■

VALVE — **BLEED ISLN L, R**

Condition: The isolation valve is not in the commanded position.

1 **If** attempting duct isolation and the isolation valve will not close:

ISLN valve switch（unaffected side）.....Off

PACK 2 control selector..... OFF

■■■■

VALVE — **>BLEED ISLN APU**

Condition: The APU bleed isolation valve is not in the commanded position.

■■■■

OFF — **>BLEED 1, 2, 3, 4 OFF**

Condition: All of these occurs:

- Engine bleed air switch is OFF.
- Engine is running.
- Engine bleed air valve is closed.

■■■■

CABIN ALT AUTO

Condition: One of these occurs:

- The automatic pressurization control is failed.
- Both outflow valve manual switches are on.

Objective: To manually control the cabin altitude.

1 OUTFLOW VALVE MAN switch (both) ..... ON

2 PACK control selector ..... One pack OFF

This reduces the incoming volume of air to ease manual operation.

▼ Continued on next page ▼

▼ CABIN ALT AUTO continued ▼

3 Choose one:

- Outflow valves **operate manually:**

  OUTFLOW VALVES

  manual control .....OPEN or CLOSE as needed to maintain the correct cabin altitude and rate

  Note: The recommended cabin rate is approximately 500 FPM for climbs and descents.

  Note: Recommended cabin altitude in cruise is:

FLIGHT LEVEL	CABIN ALTITUDE
Up to 230	Landing Field Elevation
Up to 260	2000
Up to 300	4000
Up to 350	6000
Above 350	8000

  ►►**Go to step 8**

- Outflow valves **do not** operate manually:

  ►►**Go to step 4**

4 Pressurization control is lost. Check cabin altitude, cabin rate and cabin differential pressure regularly.

5 Cabin altitude can only be maintained with packs and airplane altitude. Do not climb to higher altitudes.

6 Recalculate fuel requirements for destination.

▼ Continued on next page ▼

▼ CABIN ALT AUTO continued ▼

7 **If** cabin altitude increase to 10,000 feet or differential pressure exceeds 9 psi:

Don the oxygen masks.

Establish crew communications.

PASS OXYGEN switch .....ON

Descent to maintain cabin altitude at or below 10,000 feet and cabin differential pressure at or below 9 psi.

8 **Checklist Complete Except Deferred Items**

Deferred Items

Descent checklist

Recall.....Checked

Autobrake .....___

Landing data..... VREF___, Minimums___

Approach briefing ..... Completed

Approach Checklist

Altimeters.....___

▼ Continued on next page ▼

▼ CABIN ALT AUTO continued ▼

Choose one:

- Outflow valves **operate manually**:
  When at pattern altitude:
  OUTFLOW VALVES
  manual control .....Move the outflow valves to full open.
  ►►**Go to Landing Checklist**
- Outflow valves **do not** operate manually:
  ►►**Go to Passing 15,000 feet**

Passing 15,000 feet

PACK control selectors ..... Two packs off

Passing 10,000 feet

PACK control selectors .....All packs off

Landing Checklist

Speedbrake.....Armed
Landing gear .....DOWN
Flaps ..... ___

■■■■

>E/E CLNG CARD

Condition: A fault occurs in the equipment cooling system. The system does not fully operate.

■■■■

EQUIP COOLING

Condition: The ground exhaust valve is not in the commanded position or:

With Equipment Cooling selector in NORM or STBY, one or more of these occur:

- Airflow is insufficient.
- An overheat is sensed.
- Smoke is sensed.

With Equipment Cooling selector in OVRD, differential pressure for reverse flow cooling is not sufficient.

1 Avionics/electronic equipment and displays may become unreliable or fail.

2 Choose one:

- On the **ground:**

  EQUIP COOLING selector ..... STBY

- In **flight:**

  ►►**Go to step 3**

3 EQUIP COOLING selector..... OVRD

4 Choose one:

- EQUIP COOLING message **stays shown or shows again:**

  Plan to land at the nearest suitable airport.

- EQUIP COOLING message **stays blank.**

>HUMID FLT DK

Condition: A fault occurs in the flight deck humidifier.

■■■■

LANDING ALT

Condition: One of these occurs:

- The landing altitude disagrees between the cabin altitude controller and FMC.
- The landing altitude switch is pushed.

1 Choose one:

◆ **Manual** landing altitude control is selected:

►► **Go to step 2**

◆ **Automatic** landing altitude control is selected:

LDG ALT switch..... MAN

►► **Go to step 2**

2 LDG ALT control .....Manually set the landing altitude

■■■■

OUTFLOW VLV L,R

Condition: One of these occurs:

- Automatic outflow valve is inoperative.
- The outflow valve manual switch is on.

Objective: To control cabin altitude manually.

1 OUTFLOW VALVES MAN
Switch(affected valve) ..... ON

2 PACK control selector ..... One pack OFF

3 OUTFLOW VALVES
manual control ..... Push to CLOSE and hold until outflow valve indications show fully closed.

■■■■

PACK 1, 2, 3

SYS FAULT **May or may not be illuminated**

Condition: One or more of these occur:

- A pack controller fault.
- A pack operation fault.
- A pack overheat.
- A pack 2 shutdown and a cabin pressure relief valve is open.
- All engine bleed air is shutoff.

Objective: To attempt to switch to a functioning controller.

1 TRIM AIR switch ..... ON

2 PACK control selector(affected pack(s)) ..... A

3 PACK RST switch..... Push

4 Choose one:

- PACK message(s) **blanks**.

  ■■■■

- PACK message(s) **stays shown or shows again**:

  ►► **Go to step 5**

▼ Continued on next page ▼

▼ PACK 1, 2, 3 continued ▼

5 PACK control selector(affected pack(s))..... B

6 PACK RST switch ..... Push

7 Choose one:

- PACK essage(s) **blanks**.

■■■■

- PACK message(s) **stays shown or shows again**:

  PACK control

  Selector(affected pack(s))..... OFF

■■■■

If three PACK message are shown, pressurization is lost:

1）Descend normally to suitable flight level;

2）Advice supernumerary to don the OXY masks;

3）**Caution**: Fuel consumption is increased at low altitude; Recalculate fuel requirements for destination to decide whether or not land at the nearest suitable airport according to actuality situation.

Intentionally
Blank

PACK CONTROL

Condition: Automatic control of the outlet temperature of all packs is inoperative.

1 PACK RST switch .....Push

Note: If the PACK CONTROL message stays shown or shows again, the packs continue to work, but the air outlet temperature is not controlled.

2 Choose one:

- PACK CONTROL message **blanks**.

■■■■

- PACK CONTROL message **stays shown or shows again**:

►► **Go to step 3**

3 TRIM AIR switch .....ON

4 Packs may overheat and shut down at lower altitude during descent.

5 Choose one:

- TEMP ZONE message is **shown:**

The cabin temperature can not be control ed.

■■■■

- TEMP ZONE message is **not** shown:

►► **Go to step 6**

6 Pack outlet temperature cannot be reduced to decrease cabin temperature.

Note: Passenger cabin temperatures may be controlled with passenger temperature selector and cabin temperature panel.

■■■■

PRESS RELIEF

Condition: One or more pressure relief valves opens with all packs on.

PACK 2 control selector ..... OFF

■■■■

TEMP CARGO HEAT

Condition: An aft cargo compartment overheat occurs.

1 Choose one:

- Aft cargo heat is **not** needed:

  AFT CARGO HEAT switch ..... Off

  On extended flights, the aft cargo compartment temperature may decrease to below freezing.

- Aft cargo heat is **needed**:

Note: If aft cargo heat stays on, the system cycles at a higher temperature and alternately shows the TEMP CARGO HEAT message.

SYS FAULT

TEMP ZONE

Condition: One or more of these occur:

- A zone duct overheat.
- The master trim air valve fails closed.
- A zone temperature controller fails.
- Forward or aft lower lobe cargo zone trim air valve fails closed.
- Forward or aft lower lobe cargo compartment overheat.

1 ZONE RST switch ..... Push

2 Choose one:

◆ TEMP ZONE message **blanks.**

■■■■

◆ TEMP ZONE message **stays shown or shows again**:

►► **Go to step 3**

3 FLT DK TEMP selector ..... Set

If the zone temperature controller is failed:

The flight deck zone is maintained at a moderate temperature.

4 Main deck and upper deck temperature is not controlled.

5 Lower lobe cargo temperature may be colder than selected.

6 Do **not** accomplish the following checklist:

TRIM AIR OFF

■■■■

>TRIM AIR OFF

Condition: The master trim air valve is closed. The backup mode controls flight deck, upper deck, crew rest and main deck temperature.

B-2456/ 58:

Condition: The master trim air valve is closed. The backup mode controls flight deck, upper deck and main deck temperature.

■■■■

Intentionally
Blank

Table of Contents

Table of Contents

Intentionally
blank

>BAT DISCH APU

Condition: An APU battery is discharging.

>BAT DISCH MAIN

Condition: A main battery is discharging.

OFF >BATTERY OFF

Condition: The battery switch is off.

>DRIVE DISC 1, 2, 3, 4

Condition: The generator drive is disconnected.

ISLN

ELEC AC BUS 1, 2, 3, 4

OFF

Condition: The AC bus is not powered.

Objective: To attempt to reset the generator and then the bus tie. Also, to reset the EECs if the bus is recovered.

Attempt only one reset of the generator control switch.

1 GEN CONT switch

(affected generator) ..... OFF, then ON

2 Choose one:

- ELEC AC BUS message **stays shown**:

  Do not attempt to close the tie.

  ►►**Go to step 3**

- ELEC AC BUS message **blanks**:

  ►► **Go to step 6**

3 Choose one:

- ELEC AC BUS **2 or 3** message stays shown.

  ■■■■

- ELEC AC BUS **1 or 4** message stays shown:

  ►► **Go to step 4**

▼ Continued on next page ▼

▼ ELEC AC BUS 1, 2, 3, 4 continued ▼

4 Choose one:

- ELEC AC BUS **1** message is shown:

  Avoid icing conditions.

  Flight in icing conditions may result in unreliable Captain's and Standby flight instruments indications.

  ►►Go to Inoperative Items.

- ELEC AC BUS **4** message is shown:

  Avoid icing conditions.

  Flight in icing conditions may result in unreliable First Officer's flight instrument indications.

  ►►Go to Inoperative Items.

Inoperative Items

Both pilot probe heaters on one side of the airplane inop Avoid icing condition.
Autothrottle inop Use manual throttle.
LNAV/VNAV modes inop Use HDG SEL or HDG HOLD.
Reference EPR is blank Use manual throttle.

▼Continued on next page ▼

▼ELEC AC BUS 1, 2, 3, 4 continued ▼

5 Do **not** accomplish the following checklists:
HEAT P/S CAPT, F/O
HEAT P/S L, R AUX

■■■■

6 Choose one:

- ELEC BUS ISLN message is **not** shown.

■■■■

- ELEC BUS ISLN message is **shown**:

►► **Go to step 7**

Attempt only one reset.

7 BUS TIE switch
(affected generator) ..... Off, then AUTO

8 Choose one:

- ELEC BUS ISLN message **stays shown**.

■■■■

- ELEC BUS ISLN message **blanks**:

►► **Go to step 9**

9 Do these steps for the affected engine:
Thrust lever ..... Retard to mid position
ELEC ENG CONTROL switch ..... ALTN, then NORM

■■■■

ISLN

ELEC BUS ISLN 1, 2, 3, 4

Condition: The bus tie is open.

Objective: To attempt to reset the bus tie.

Attempt only one reset of the bus tie switch.

BUS TIE switch ..... Off, then AUTO

■■■■

DRIVE

ELEC DRIVE 1, 2, 3, 4

Condition: One of these occurs:

- IDG oil pressure low.
- IDG temperature high.
- Generator control open due to uncorrectable generator frequency fault.

Objective: To prevent damage to the IDG.

Action is irreversible

1 Generator DRIVE DISC switch

(affected generator) .....Confirm.....Push

2 Do **not** accomplish the following checklists:

DRIVE DISC
ELEC GEN OFF

■■■■

OFF

ELEC GEN OFF 1, 2, 3, 4

Condition: The generator control is open.

Objective: To attempt to reset the generator.

Attempt only one reset of the generator control switch.

GEN CONT switch.....OFF, then ON

■■■■

>ELEC SSB OPEN

Condition: The split system breaker is failed open.

■■■■

OFF

ELEC UTIL BUS L,R

Condition: A utility bus is not powered.

Objective: To attempt to reset power.

Attempt only one reset

UTILITY power switch ..... Off, then ON

Leave the UTILITY power switch ON.

■■■■

>STBY BUS APU

Condition: The APU standby bus is not powered.

>STBY BUS MAIN

Condition: The main standby bus is not powered.

>STBY PWR OFF

B-2409/ 56/ 58

Condition: The standby bus is not powered.

Intentionally
Blank

Table of Contents

Table of Contents

Aborted Engine Start

Condition: During a ground start, an abort start condition occurs.

Objective: To shut down the engine and motor it.

1 FUEL CONTROL SWITCH.....CUTOFF

---

2 Choose one:

- Engine START light is **illuminated**:
  Motor the engine for 30 seconds.
  Engine START switch ..... Push

■ ■ ■ ■

- Engine START light is **extinguished**:
  ►►**GO TO STEP 3**

3 **When** N2 decreases below 15%:
B-2456/ 58/ 75/ 76
AUTOSTART switch..... Off
This allows engine motoring.

Engine START switch ..... Pull
Motor the engine for 30 seconds.

Engine START switch ..... Push

■ ■ ■ ■

ENG 1, 2, 3, 4 AUTO START

Aircraft have auto start system

Condition: During a ground start, any of the following condition occur:

- Autostart did not start the engine.
- The fuel control switch is in RUN at low engine RPM with the autostart switch off.

Objective: To shut down the engine and motor it.

1 FUEL CONTROL SWITCH..... CUTOFF

2 Choose one:

- Engine START light is **illuminated**:
  Motor the engine for 30 seconds.
  Engine START switch .....Push

■■■■

- Engine START light is **extinguished**:
  ►► **GO TO STEP 3**

3 **When** N2 decreases below 15%:

AUTOSTART switch ..... Off

This allows engine motoring.

Engine START switch.....Pull

Motor the engine for 30 seconds.

Engine START switch.....Push

■■■■

Intentionally
Blank

ENG 1, 2, 3, 4 FAIL
Or
Multiple Engine Flameout or Stall

Condition: One of these occurs on two or more engines:

- Engine flameout.
- Engine indications are unusual.
- Engine indications are more than limits.
- Unusual engine noises are heard.
- There is no response to thrust lever movement.

Objective: To attempt a rapid relight.

1 CONT IGNITION switch..... ON

2 FUEL CONTROL switches

(affected engines) .....Confirm.....CUTOFF, then RUN

3 **If** EGT rises rapidly approaching the EGT takeoff limit:

Repeat the above step as needed.

▼ Continued on next page ▼

▼ENG 1, 2, 3, 4 FAIL or Multiple Engine Flameout or Stall continued ▼

4 Choose one:

- Airspeed is **less than** 200 KIAS:
  PACK control selectors ..... Set a maximum of one pack on.
  Engine START switch (affected engines) ..... Pull
  ►► **GO TO STEP 5**
- Airspeed is **equal or more than** 200 KIAS:
  ►► **GO TO STEP 5**

5 Engines may accelerate to idle very slowly, especially at high altitudes. Slow acceleration may be incorrectly interpreted as a hung start or an engine malfunction.

6 If N2 is steadily increasing and EGT stays within limits, the start is progressing normally.

B-2456/ 58/ 75/ 76:

7 Choose one:

- AUTOSTART switch for the affected engine is **off**:
  Monitor EGT during engine start.
  ■■■■
- AUTOSTART switch for the affected engine is **ON**.
  ■■■■

B-2409/ 77/ 78:

8 AUTO IGNITION selector ..... BOTH

Engine Limit or Surge or Stall

Condition: One or more of these occur:

- Engine indications are unusual.
- Engine indication are rapidly approaching or exceeding limits.
- Unusual engine noises are heard.
- There is no response to thrust lever movement.

Objective: To attempt to recover normal engine operation, or shut down the engine if recovery is not possible.

1 Thrust lever (affected engine) ..... Confirm .....Retard
until indications stay within normal limits,
or return to normal,
or the thrust lever is at idle

---

2 CON IGNITION switch..... ON
This may prevent flameout.

▼Continued on next page▼

▼ Engine Limit or Surge or Stall continued ▼

3 Choose one:

- **EGT is stabilized or decreasing** and the other engine indications are **normal:**
  ►► GO TO STEP 4

- **EGT continues to increase** toward the limit or the abnormal **condition continues:**
  FUEL CONTROL switch
  (affected engine) ..... Confirm .....CUTOFF
  Transponder mode selector ..... TA / TA ONLY
  Do not accomplish the following checklist:
  ENG SHUTDOWN

■■■■

4 Thrust lever (affected engine) .....Advance slowly and check that RPM and EGT follow thrust lever movement and all indications stay within limits

5 Run the engine normally or at a reduced thrust level which is surge and stall free.

■■■■

APU

Condition: One of these occurs:

- An APU automatic shutdown.
- An APU N1 RPM is more than 95% with the APU selector off.

Objective: To shutdown or attempt to restart the APU.

1 Choose one:

- APU selector is OFF:
  APU fire switch.....Confirm.....Override and pull

- APU selector is **on**:
  APU selector .....OFF
  ►► **GO TO STEP 2**

2 Choose one:

- APU message **blanks:**
  A restart may be attempted.

- APU message **stays shown**:
  Do **not** attempt a restart.

APU DOOR

Condition: The APU door is not in the commanded position.

Objective: To ensure accurate fuel burn calculations in flight, or attempt an APU restart on the ground.

1 Choose one:

- In **flight:**
  If the APU selector is **OFF**:
  Apply the APU door open fuel burn penalty of 2%.
- On the **ground**:
  ►► **GO TO STEP 2**

2 Choose one:

- APU selector is **OFF**.
  ■■■■
- APU selector is **ON**.
  ►► **GO TO STEP 3**

3 APU selector.....OFF, then ON

4 Choose one:

- APU DOOR message **blanks**:
  A restart may be attempted.
  ■■■■
- APU DOOR message **stays shown**:
  Do not attempt a restart.
  ■■■■

APU FUEL

Condition: One or more of these occur:

- Low pump pressure is detected when the pump is activated.
- APU fuel valve is not in the commanded position.

1 APU selector .....OFF

2 Do not start the APU.

■■■■

>AUTOSTART OFF

B-2456/ 58/ 75/ 76

Condition: The engine autostart switch is off.

■■■■

>EEC 1, 2, 3, 4 TEST PWR

B-2409, B-2477, B-2478

Condition: EEC maintenance power switch in TEST.

■■■■

>ENG 1, 2, 3, 4 CONTROL

Condition: An EEC system fault occurs.

■■■■

ALTN ENG 1, 2, 3, 4 EEC MODE

Condition: An EEC operates in the alternate control mode.

Objective: To place all the EECs in alternate.

1 Do these steps on all operating engines, one engine at a time:

Thrust lever ..... Retard to mid position

ELEC ENG CONTROL switch ..... ALTN

2 Maximum thrust limiting is not available.

3 Autothrottle is not available.

■■■■

ENG 1, 2, 3, 4 FAIL— Single

B-2456/ 58/ 75/ 76

Condition: One of these occurs:
- An engine failure.
- An engine flameout.

1 **If** more than one ENG FAIL message is shown:

►►**Go to the ENG 1, 2, 3, 4 Fail or Multiple Engine Flameout or Stall checklist on page 7.4**

2 Thrust lever ..... Confirm..... Idle

3 FUEL CONTROL switch..... Confirm..... CUTOFF

4 Transponder mode selector ..... TA / TA ONLY

5 Do **not** accomplish the following checklist:

ENG SHUTDOWN

6.A restart may be attempted if there is N1 rotation and no abnormal airframe vibration.

7 Choose one:

- Restart **is not** needed:

[redacted]

- Restart **is** needed:

►►**Go to step 8**

8.Monitor EGT during start.

▼Continued on next page ▼

▼ ENG 1, 2, 3, 4 FAIL continued ▼

9. Engines may accelerate to idle very slowly, especially at high altitudes. Slow acceleration may be incorrectly interpreted as a hung start or an engine malfunction.
10. If N2 is steadily increasing, and EGT stays within limits, the start is progressing nowmally.
11. Choose one:
    - AUTOSTART switch is **ON:**

      ►►Go to step 12

      ■■■■
    - AUTOSTART switch is **Off:**

      AUTO IGNITION selector ..... BOTH

      ►►Go to step 13
12. Choose one:
    - X-BLD is **not** shown:

      FUEL CONTROL switch ..... RUN

      ►►Go to step 14
    - X-BLD is **shown:**

      Engine START switch ..... Pull

      FUEL CONTROL switch ..... RUN

      ►►Go to step 15

▼Continued on next page ▼

▼ ENG 1, 2, 3, 4 FAIL continued ▼

13. Choose one:

- X-BLD is **not** shown:

  CONT IGNITION switch ..... ON

  FUEL CONTROL switch .....RUN

  ►►Go to step 14

- X-BLD is **shown:**

  Engine START switch ..... Pull

  When N2 exceeds the fuel-on indicator:

  FUEL CONTROL switch .....RUN

  ►►Go to step 15

14. Choose one:

- EGT **does not** increase within 30 seconds **or** an abort start condition as listed in normal procedures **occurs**:

  FUEL CONTROL

  Switch..... .....Confirm.....CUTOFF

  ■■■■

- Start is **normal:**

  Transponder mode selector .....TA/RA

  ■■■■

▼Continued on next page ▼

15. Choose one:

- EGT **does not** increase within 30 seconds **or** an abort start condition as listed in normal procedures **occurs**:

  FUEL CONTROL

  Switch..... .....Confirm.....CUTOFF

  Engine START switch.....Push

  ■■■■

- Start is **normal:**

  Transponder mode selector .....TA/RA

  ■■■■

ENG 1, 2, 3, 4 FAIL— Single

B-2409/ 77/ 78

Condition: One of these occurs:
- An engine failure.
- An engine flameout.

1 If more than one ENG FAIL message is shown:

►►**Go to the ENG 1, 2, 3, 4 Fail or Multiple Engine Flameout or Stall checklist on page 7.4**

2 Thrust lever ..... Confirm..... Idle

3 FUEL CONTROL switch..... Confirm..... CUTOFF

4 Transponder mode selector ..... TA/TA ONLY

5 Do **not** accomplish the following checklist:

ENGINE SHUTDOWN

6.A restart may be attempted if there is N1 rotation and no abnormal airframe vibration.

7 Choose one:

- Restart **is not** needed:

[redacted]

- Restart **is** needed:

►►**Go to step 8**

8.Monitor EGT during start.

▼Continued on next page ▼

▼ENG 1, 2, 3, 4 FAIL continued▼

9.Engines may accelerate to idle very slowly, especially at high altitudes. Slow acceleration may be incorrectly interpreted as a hung start or an engine malfunction.

10.If N2 is steadily increasing, and EGT stays within limits, the start is progressing nowmally.

11. AUTO IGNITIONselector ..... BOTH

12. Choose one:

- X-BLD is **not** shown:

  CONT IGNITION switch ..... ON

  FUEL CONTROL switch ..... RUN

  ►►Go to step 13

- X-BLD is **shown:**

  Engine START switch ..... Pull

  FUEL CONTROL switch ..... RUN

  ►►Go to step 14

▼Continued on next page▼

▼ ENG 1, 2, 3, 4 FAIL continued ▼

13. Choose one:

- EGT **does not** increase within 30 seconds **or** an abort start condition as listed in normal procedures **occurs**:

  FUEL CONTROL

  Switch..... .....Confirm.....CUTOFF

  ■■■■

- Start is **normal:**

  Transponder mode selector .....TA/RA

14. Choose one:

- EGT **does not** increase within 30 seconds **or** an abort start condition as listed in normal procedures **occurs**:

  FUEL CONTROL

  Switch..... .....Confirm.....CUTOFF

  Engine START switch.....Push

  ■■■■

- Start is **normal:**

  Transponder mode selector .....TA/RA

  ■■■■

ENG 1, 2, 3, 4 FUEL FILT

Condition: Fuel contamination can cause fuel to bypass the fuel filter.

Erratic engine operation and flameout may occur due to fuel contamination.

■■■■

ENG 1, 2, 3, 4 FUEL VLV

Condition: One or more of these occur:
- The engine fuel valve is not in the commanded position.
- The fuel spar valve is not in the commanded position.

1 Choose one:
- In **flight.**

■■■■

- One the **ground**:

  Do not attempt an engine start.

■■■■

>ENG 1, 2, 3, 4 LIM PROT

Condition: The EEC operates in the alternate control mode and thrust is approaching maximum rating.

■■■■

ENG 1, 2, 3, 4 LOW IDLE

Condition: Engine idle not in approach setting when commanded.

1 Thrust lever (affected engine)..... Advance until the ENG LOW IDLE message blanks.

■■■■

ENG 1, 2, 3, 4 OIL FILT

Condition: Oil filter contamination can cause oil to bypass the primary oil filter.

Primary engine oil filter approaching bypass condition. Oil flow to the engine will be filtered through the secondary filter element.

■■■■

ENG 1, 2, 3, 4 OIL PRESS

Condition: The oil pressure is low.

1 Choose one:

- Oil pressure is **above** the red line limit.

■■■■

- Oil pressure **is at or below** the red line limit:

►►**Go to step 2**

2 Thrust lever

(affected engine).....Confirm..... Idle

3 FUEL CONTROL switch

(affected engine).....Confirm..... CUTOFF

4 Transponder mode selector ..... TA ONLY

5 Do **not** accomplish the following checklist:

ENG SHUTDOWN

■■■■

ENG 1, 2, 3, 4 OIL TEMP

Condition: The oil temperature is high.

1 Thrust lever
(affected engine)..... Confirm .....Retard slowly until temperature decreases.

2 Choose one:

- ENG OIL TEMP message **blanks:**
  Run the engine at a thrust level to keep the ENG OIL TEMP message from showing.

■■■■

- Oil temperature does **not decrease** below the red line limit or **stays in the amber band** for longer than 20 minutes:
  ►► **Go to step 3**

3 Thrust lever
(affected engine) ..... Confirm .....Idle

4 FUEL CONTROL switch
(affected engine)..... Confirm .....CUTOFF

5 Transponder mode selector ..... TA ONLY

6 Do not accomplish the following checklist:
ENG SHUTDOWN

■■■■

>ENG 1, 2, 3, 4 REVERSER

Condition: A fault occurs in the thrust reverser system.

■■■■

>ENG 1, 2, 3, 4 RPM LIM

Condition: The N1or N2 red line limit restricts the engine's thrust.

■■■■

>ENG 1, 2, 3, 4 SHUTDOWN

Condition: The engine was shut down by the fuel control switch or the engine fire switch.

■■■■

ENG 1, 2, 3, 4 START VLV

Condition: The start valve is not in commanded position.

1 In-flight or ground start using bleed air source may be unsuccessful.
2 **If** in flight:
Increase airspeed until X-BLD is no longer shown.

■■■■

>ENG CONTROLS

Condition: Three or four EEC systems operate in a degraded mode. The systems do not have full redundancy.

■■■■

ENG IGNITION

Condition: The continuous ignition system is failed.

STBY IGNITION selector..... 1 or 2

■■■■

ENGINE IN-FLIGHT START

B-2456/ 58/ 75/ 76

Condition: An engine start is needed after a shutdown with no fire or apparent damage.
- N1 rotation
- No fire
- No abnormal airframe vibration

1 Monitor EGT during start.

2 Engines may accelerate to idle very slowly, especially at high altitudes. Slow acceleration may be incorrectly interpreted as a hung start or an engine malfunction.

3 If N2 is steadily increasing and EGT stays within limits, the start is progressing normally.

4 Choose one:

- AUTOSTART switch is **ON:**
  ►► **Go to step 5**
- AUTOSTART switch is **Off:**
  AUTO INGNITION selector ..... BOTH
  ►► **Go to step 6**

▼Continued on next page▼

▼ Engine In-flight Start continued ▼

5 Choose one:

- X-BLD is **not** shown:
  FUEL CONTROL switch.....RUN
  ►► **Go to step 7**

- X-BLD is **shown:**
  Engine START switch ..... Pull
  FUEL CONTROL switch.....RUN
  ►► **Go to step 8**

6 Choose one:

- X-BLD is **not** shown:
  CONT IGNITION switch ..... ON
  FUEL CONTROL switch.....RUN
  ►► **Go to step 7**

- X-BLD is **shown:**
  Engine START switch ..... Pull
  When N2 exceeds the fuel-on indicator:
  FUEL CONTROL switch .....RUN
  ►► **Go to step 8**

▼ Continued on next page ▼

▼ Engine In-flight Start continued ▼

7 Choose one:

- EGT **does not** increase within 30 seconds **or** an abort start condition as listed in normal procedures **occurs:**

  FUEL CONTROL
  switch .....Confirm..... CUTOFF

  ■■■■

- Start is **normal:**

  Transponder mode selector..... TA/RA

8 Choose one:

- EGT **does not** increase within 30 seconds **or** an abort start condition as listed in normal procedures **occurs:**

  FUEL CONTROL
  switch .....Confirm..... CUTOFF
  Engine START SWITCH.....PUSH

  ■■■■

- Start is **normal**:

  Transponder mode selector..... TA/RA

  ■■■■

ENGINE IN-FLIGHT START

B-2409, B-2477, B-2478

Condition: An engine start is needed after a shutdown with no fire or apparent damage.

Note: The EGT limit of in-flight start is 650℃

1 Monitor EGT during start.

2 Engines may accelerate to idle very slowly, especially at high altitudes. Slow acceleration may be incorrectly interpreted as a hung start or an engine malfunction.

3 If N2 is steadily increasing and EGT stays within limits, the start is progressing normally.

4 AUTO IGNITION selector.....BOTH

5 Choose one:

- X-BLD is not shown:
  - CONT IGNITION switch ..... ON
  - FUEL CONTROL switch.....RUN
  - ►► **Go to step 6**
- X-BLD is shown:
  - Engine START switch ..... PULL
  - FUEL CONTROL switch.....RUN
  - ►► **Go to step 7**

▼ Continued on next page ▼

6 Choose one:

- EGT **does not** increase within 30 seconds **or** an abort start condition as listed in normal procedures **occurs**:
  FUEL CONTROL switch .Confirm..... CUTOFF

■■■■

- Start is **normal**:
  Transponder mode selector..... TA/RA

7 Choose one:

- EGT **does not** increase within 30 seconds **or** an abort start condition as listed in normal procedures **occurs**:
  FUEL CONTROL switch .Confirm..... CUTOFF
  Engine START switch.....PUSH

■■■■

- Start is **normal**:
  Transponder mode selector..... TA/RA

■■■■

>IDLE DISAGREE

Condition: One or more engines are at approach idle and one or more engines are at minimum idle.

■■■■

REVERSER UNLOCKED

Condition: The reverse annunciation shows with intentional reverse thrust not selected.

1 Choose one:

- With **no** yaw, loss of airspeed, or buffet:
  Run the engine normally.

■■■■

- **With** yaw, loss of airspeed, or buffet:
  ►► **Go to step 2**

2 FUEL CONTROL switch
(affected engine) ..... Confirm .....CUTOFF

3 Do **not** accomplish the following checklist:
ENG SHUTDOWN

4 Transponder mode selector..... TA / TA ONLY

5 Buffet may reduced by decreasing airspeed.

▼ Continued on next page ▼

▼ REVERSER UNLOCKED continued ▼

6 Plan to use flaps 25 and VREF 30+20 for landing.

7 **Checklist Complete Except Deferred Items**

Deferred Items

Descent Checklist

Recall.....Checked
Autobrake ..... ___
Landing data..... **VREF 30+20, Minimums**___
Approach briefing ..... COMPLETED

Approach Checklist

Altimeters..... ___

Landing checklist

Speedbrake ..... Armed
Landing gear ..... DOWN
Flaps..... **25**

■■■■

STARTER CUTOUT 1, 2, 3, 4

Condition: Start valve fails to close.

1 Engine START switch(affected engine)..... Push

2 Choose one:

- STARTER CUTOUT message **blanks**.

■■■■

- STARTER CUTOUT message **stays shown**:

  ►► **Go to step 3**

3 ENGINE BLEED air switch(affected engine)..... OFF

4 Nacelle anti-ice for the affected engine is not available.

■■■■

Two Engines Inoperative

Condition: A two engine landing is needed.

1 The autothrottle is inoperative.

2 **Checklist Complete Except Deferred Items**

Deferred Items

Landing commit point is gear extension.

Warning ! Go-Around after passing the landing commit point is not recommended. Performance is not assured.

Use Flaps 25 and VREF 25 for landing.

PACK control selectors ..... Two packs OFF

Descent Checklist

Recall.....Checked

Autobrake ..... ___

Landing data..... **VREF 25, Minimums** ___

Approach briefing ..... COMPLETED

Approach Checklist

Altimeters..... ___

▼ Continued on next page ▼

Go-around procedure review

If a go-around is absolutely required:

Do not use TO/GA.

Set Flaps 20, at the same time increase thurst as airspeed increases while maintaining directional control.

Retract the landing gear without delay.

Retract flaps to flaps 1 on schedule. Descent may be required.

Climb at VREF30 + 60.

Extend the landing gear and select flaps 20 at glideslope intercept, or at final descent point.

Approaching 1,000 feet AGL select flaps 25 and center rudder trim.

Landing Checklist

Speedbrake.....Armed
Landing gear.....DOWN
Flaps **25**

■■■■

Volcanic Ash

Condition: Volcanic ash is suspected when one or more of these occur:
- A static discharge around the windshield.
- A bright glow in the engine inlets.
- Smoke or dust on the flight deck.
- An acrid odor.

Objective: To exit the ash cloud and restart engines if needed.

Caution! Exit volcanic ash as quickly as possible. Consider a 180 degree turn.

1 Don oxygen masks and smoke goggles, if needed.

2 Establish crew communications, if needed.

3 Autothrottle disconnect switch.....Push

This allows the thrust levers to stay where manually positioned.

If conditions allow, run the engines at idle

4 Thrust levers ..... Idle

This reduces possible engine damage or flameout, or both by decreasing EGT.

5 CONT IGNITION switch .....ON

6 PACK control selectors (all) ..... NORM

7 HI FLOW switch .....ON

▼Continued on next page▼

▼ Volcanic Ash continued ▼

8 NACELLE ANTI-ICE switches ..... ON

This increases bleed air extraction to improve engine stall margins.

9 WING ANT-ICE switch ..... ON

This increases bleed air extraction to improve engine stall margins.

10 **If** any engine is flame out or stalled, or EGT is rapidly approaching or exceeding limit:

Engines may accelerate to idle very slowly, especially at high altitudes. Slow acceleration may be incorrectly interpreted as a hung start or an engine switch.

If N2 is steadily increasing, and EGT remains within limits, the start is progressing normally.

FUEL CONTROL switch

(affected engine) ..... Confirm ..... CUTOFF, then RUN

If airspeed less then 200 KIAS:

PACK CONTROL selectors ..... SET

Set a maximum of one pack on.

Engine START switch

(affected engine) ..... PULL

11 AUTO IGNITION selector ..... BOTH

▼ Continued on next page ▼

▼ Volcanic Ash continued ▼

12 Volcanic ash can cause abnormal system operation such as:

Engine malfunctions, increasing EGT, unusually high EGT, compressor stall, or flameout.

Decreased or complete loss of airspeed indications.

Equipment cooling system malfunctions.

Cargo fire indications.

13 Plan to land at nearest suitable airport.

Intentionally
Blank

Table of Contents

Table of Contents

APU

FIRE APU

Condition: Fire is detected in the APU.

1 APU fire switch.....Confirm.....Pull, rotate to the stop and hold for 1 second

2 Choose one:

- FIRE APU message **stays shown**:
  Plan to land at the nearest suitable airport.
  ►► **Go to step 3**
- FIRE APU message **blanks**:
  ►► **Go to step 3**

3 Do **not** accomplish the following checklist:
APU

■■■■

FIRE ENG 1, 2, 3, 4 or Engine Severe Damage or Separation

Condition: One or more of these occur:

- Engine fire warning.
- Airframe vibrations with unusual engine indications.
- Engine separation.

Note: Check duct pressure when engine damage or separation occurred; Close ISLN VLV switch (affected side) if the duct pressure is zero.

1 Thrust lever
(affected engine) ..... Confirm ..... Idle

2 FUEL CONTROL switch
(affected engine) ..... Confirm ..... CUTOFF

3 Engine fire switch
(affected engine) ..... Confirm ..... Pull

4 **If** the FIRE ENG message is shown:
Engine fire switch ..... Rotate to the stop and hold for 1 second

If after 30 seconds the FIRE ENG message stays shown:
Engine fire switch ..... Rotate to the other stop and hold for 1 second

---

▼Continued on next page▼

▼ FIRE ENG 1,2,3,4 or Severe Damage Engine or Separation continued ▼

5 **If** High vibration occurs and continues after engnie shutdown:

Without delay, reduce airspeed and descend to a safe altitude which results in an acceptable vibration level.

If high vibration returns and further airspeed reduction and descent are not practical, increasing airspeed may reduce the vibration.

►► **Go to step 7**

6 Transponder mode selector ..... TA / TA ONLY

7 For severe engine damage, separation, or an engine fire that does not extinguish:

Plan to land at the nearest suitable airport.

8 Do **not** accomplish the following checklist:

ENG SHUTDOWN

■■■■

Fire Engine Tailpipe

Condition: An engine tailpipe fire occurs on the ground with no engine fire warning.

1 FUEL CONTROL switch
(affected engine) ..... CUTOFF

2 Advise the cabin

B-2456/ 58/ 75/ 76:

3 Choose one:

- Bleed air is **available**:

  PACK control selectors (all).....OFF

  This allows maximum bleed air for engine motoring.

  If the affected engine start light is extinguished:

  Allow the affected N2 to decrease below 20%.

  AUTOSTART switch
  (affected engine) ..... Off

  Engine START switch
  (affected engine) .....Pull

  ►► **Go to step 5**

- Bleed air is **not** available:

  ►► **Go to step 5**

▼ Continued on next page ▼

▼ Fire Engine Tailpipe continued ▼

B-2409, B-2477, B-2478

4 Choose one:

- Bleed air is **available**:

  PACK control selectors (all).....OFF

  This allows maximum bleed air for engine motoring.

  If the affected engine start light is extinguished:

  Allow the affected N2 to decrease below 20%.

  Engine START switch (affected engine).....Pull

  ►► **Go to step 5**

- Bleed air is **not** available:

  ►► **Go to step 5**

5 Advise the tower.

▼ Continued on next page ▼

6 Choose one:

- Engine **is being motored**:

  Continue to motor until the tailpipe fire is extinguished.

  Engine START switch
  (affected engine)..... Push

  ■■■■

- Engine is **not** being motored.

  ■■■■

Smoke, Fire or Fumes

Condition: Smoke, Fire, or Fumes.

1 Diversion may be needed.

2 Don oxygen masks, if needed.

3 Don smoke goggles, if needed.

4 Establish crew communications.

5 Instruct the supernumeraries to turn on the upper deck reading lights.

6 UTILITY power switches (both) ..... Off

7 FLT DECK FAN switch ..... Off

8 APU selector ..... OFF

9 Supernumerary signs ..... ON

10 **Anytime** the smoke or fumes becomes the greatest threat:

►► **Go to the Smoke or Fumes Removal checklist on page 8.22, if neened.**

▼ Continued on next page ▼

▼ Smoke, Fire or Fumes continued ▼

11 Choose one:

- Source of the smoke, fire or fumes **is** obvious **and can** be extinguished quickly:

  Isolate and extinguish the source of the smoke, fire or fumes.

  If possible, remove power from the affected equipment by switch or circuit breaker in the flight deck or cabin.

  ►►Go to step 12

- Source of the smoke, fire or fumes is **not** obvious **or can not** be extinguished quickly:

  ►►Go to step 13

12 Choose one:

- Source **is** visually confirmed to be extinguished **and** smoke or fumes are **decreasing**:

  Continue the flight at the Captain's discretion.

  Restore unpowered items at the Captain's discretion.

  ►► Go to step 24

- Source **is not** visually confirmed to be extinguished **or** smoke or fumes **continue**:

  ►► Go to step 13

▼ Continued on next page ▼

▼ Smoke, Fire or Fumes continued ▼

13 Divert to the nearest suitable airport while continuing the checklist.

14 Consider an immediate landing if the smoke, fire or fumes situation becomes uncontrollable.

15 Do not delay landing in an attempt to complete the following steps.

16 ISLN VALVE switches (both) ..... Off
This isolates the left and right sides of the bleed air system.

17 PACK 2 control selector .....OFF

18 **Wait** 2 minutes unless the smoke or fumes are increasing. This allows time for the smoke or fumes to clear.

19 Choose one:

- Smoke or fumes **continue or are increasing**:
  PACK 3 control selector.....OFF
  Wait 2 minutes unless the smoke or fumes are increasing. This allows time for the smoke or fumes to clear.
  ►► **Go to step 20**
- Smoke or fumes are **decreasing**:
  ►► **Go to step 24**

▼ Continued on next page ▼

▼ Smoke, Fire or Fumes continued ▼

20 Choose one:

- Smoke or fumes **continue or are increasing**:
  PACK 3 control selector ..... NORM
  PACK 1 control selector ..... OFF
  R ISLN switch ..... ON
  ►►**Go to step 21**

- Smoke or fumes are decreasing:
  L ISLN switch..... ON
  ►►**Go to step 21**

21 PACK 2 control selector..... NORM

22 **Wait** 2 minutes unless the smoke or fumes are increasing. This allows time for the smoke or fumes to clear.

23 Choose one:

- Smoke or fumes **continue or are increasing**:
  ISLN switches (both) .....On
  PACK 1 control selector ..... NORM
  R ISLN valve switch..... ON
  Consider an immediate landing.
  ►►**Go to step 24**

- Smoke or fumes are decreasing:
  L ISLN valve switch ..... ON
  ►►**Go to step 24**

▼ Continued on next page ▼

▼Smoke, Fire or Fumes continued▼

24 Do **not** accomplish the following checklists:

B-2409/ 75/ 76: CARGO DET AIR

ELEC UTIL BUS L, R

FUEL OVRD 2, 3 FWD

FUEL PRESS CTR L

FUEL PUMP 2, 3 FWD

B-2409/ 75/ 76: HUMID FLT DK

TEMP ZONE

TRIM AIR OFF

►► **Go to the Smoke or Fumes Removal checklist on page 8.22**

■■■■

>BOTTLE LOW APU

Condition: The APU fire bottle pressure is low.

■■■■

>BTL LO L ENG A, B

Condition: The left wing fire bottle A or B pressure is low.

■■■■

>BTL LO R ENG A, B

Condition: The right wing fire bottle A or B pressure is low.

■■■■

>CARGO DET AIR

Condition: Cargo smoke detection airflow is not sufficient.

■■■■

>CGO BTL DISCH

Condition: One of these occurs:

- On the ground, a cargo fire bottle pressure is low.
- In flight, both cargo fire bottle A and B are discharged.

■■■■

>DET FIRE APU

Condition: APU fire detection is inoperative.

■■■■

>DET FIRE/OHT 1, 2, 3,4

Condition: Engine fire and overheat detection is inoperative.

■■■■

AFT

FIRE CARGO AFT

Condition: Smoke is detected in the lower aft cargo compartment.

1 AFT CARGO FIRE
ARM switch.....Confirm.....ARMED
SATCOM will shutdown to prevent overheating.
System shuts down two packs and respective PACK EICAS messages are shown.

2 PACK 3 control selectors
(affected packs).....OFF, set a maximum of one pack on

3 CARGO FIRE DEPRESS/
DISCH switch .....Push and hold for one second
B-2409/ 75/ 76
210 minutes of fire suppression are available.
B-2456/ 58
334 minutes of fire suppression are available.
B-2477/ 78
195 minutes of fire suppression are available.

4 Choose one:
- Airplane is **at or below** 8,000 feet:
  ►►**Go to step 7**
- Airplane is **above** 8,000 feet:
  ►►**Go to step 5**

5 LDG ALT switch .....MAN

6 LDG ALT selector..... Set the landing altitude between 8,000 and 8,500 feet to command cabin altitude to 8,000 feet.

▼Continued on next page▼

▼ FIRE CARGO AFT continued ▼

7 Plan to land at the nearest suitable airport.

8 Do **not** accomplish the following checklist:

LANDING ALT

9 **Checklist Complete Except Deferred Items**

Deferred Items

Before descent

LDG ALT switch ..... AUTO

Descent Checklist

Recall ..... Checked

Autobrake ..... ___

Landing data ..... VREF___, Minimums___

Approach briefing ..... Completed

Approach checklist

Altimeters ..... ___

Landing checklist

Speedbrake ..... Armed

Landing gear ..... DOWN

Flaps ..... ___

Warning ! Inform ground personnel not to open the cargo door until all supernumeraries and crew have exited the airplane and fire fighting equipment is nearby.

■■■■

FWD

FIRE CARGO FWD

Condition: Smoke is detected in the lower forward cargo compartment.

1 FWD CARGO FIRE

ARM switch.....Confirm.....ARMED

SATCOM will shutdown to prevent overheating.

System shuts down two packs and respective PACK EICAS messages are shown.

2 PACK control selectors

（affected packs）.....OFF, set a maximum of one pack on

3 CARGO FIRE DEPRESS/

DISCH switch .....Push and hold for one second

B-2409/ 75/ 76

210 minutes of fire suppression are available.

B-2456/ 58

334 minutes of fire suppression are available.

B-2477/ 78

195 minutes of fire suppression are available.

4 Choose one:

- Airplane is **at or below** 8,000 feet:
  ►►**Go to step 7**
- Airplane is **above** 8,000 feet:
  ►►**Go to step 5**

5 LDG ALT switch .....MAN

6 LDG ALT selector..... Set the landing altitude between 8,000 and 8,500 feet to command cabin altitude to 8,000 feet.

▼ Continued on next page ▼

▼ FIRE CARGO AFT continued ▼

7 Plan to land at the nearest suitable airport.

8 Do **not** accomplish the following checklist:

LANDING ALT

9 **Checklist Complete Except Deferred Items**

Deferred Items

Before descent

LDG ALT switch ..... AUTO

Descent Checklist

Recall ..... Checked
Autobrake ..... ___
Landing data ..... VREF___, Minimums___
Approach briefing ..... Completed

Approach checklist

Altimeters ..... ___

Landing checklist

Speedbrake ..... Armed
Landing gear ..... DOWN
Flaps ..... ___

Warning! Inform ground personnel not to open the cargo door until all supernumeraries and crew have exited the airplane and fire fighting equipment is nearby.

MAIN DECK

FIRE MAIN DECK
FIRE MN DK AFT, FWD, MID

Condition: Smoke is detected in the main deck cargo area(s).

1 Don oxygen masks.

2 Establish crew and cabin communications.

3 SUPRNMRY OXYGEN switch ..... ON

4 MAIN Deck CARGO FIRE
ARM switch ..... Confirm ..... ARMED
SATCOM will shutdown to prevent overheating.
System shuts down two packs and respective
PACK EICAS messages are shown.

5 PACK control selector
(affected packs)..... OFF, set a
maximum of one pack on

6 CARGO FIRE DEPRESS/
DISCH switch .....Push and hold for one second

7 Climb or descent to 25,000 feet when conditions and terrain allow.

8 Plan to land at the nearest suitable airport

▼ Continued on next page ▼

▼ FIRE MAIN DECK continued ▼

9 Do **not** accomplish the following checklists:
CABIN ALTITUDE or Rapid Depressurization
TEMP ZONE

10 **Checklist Complete Except Deferred Items**

Deferred Items

Before descent

LDG ALT switch.....AUTO

Descent Checklist

Recall .....Checked
Autobrake .....___
Landing data..... VREF___, Minimums___
Approach briefing ..... Completed

Approach checklist

Altimeters.....___

Landing checklist

Speedbrake ..... Armed
Landing gear..... DOWN
Flaps.....___

Warning! Inform ground personnel not to open the cargo door until all supernumeraries and crew have exited the airplane and fire fighting equipment is nearby.

FIRE WHEEL WELL

Condition: Fire is detected in a main wheel well.

1 **When** extending or retracting the landing gear, do not exceed the gear EXTEND limit speed（270K/.82M）.

2 Landing gear lever .....DN

This attempt to remove and extinguish the fire source.

3 Do not use FMC fuel predictions with gear extended.

4 Choose one:

- Gear **must be retracted** for airplane performance:

  ►►**Go to step 5**

- Gear **does not need to be retracted** for airplane performance:

  ►►**Go to step 6**

5 **When** the FIRE WHEEL WELL message blanks:

Wait 20 minutes. This attempts to ensure the wheel well fire is extinguished.

Landing gear lever.....UP, then OFF

6 Plan to land at the nearest suitable airport.

■■■■

OVHT ENG 1, 2, 3, 4 NAC

Condition: An overheat is detected in the engine.

1 ENGINE BLEED air switch（affected engine）..... OFF

2 Thrust lever
（affected engine）..... Confirm .....Retard
Slowly until the OVHT ENG NAC message blanks

3 Choose one:

- OVHT ENG NAC message **stays shown**:
  Thrust lever
  （affected engine）..... Confirm ..... Close
  FUEL CONTROL switch
  （affected engine）..... Confirm .....CUTOFF
  ►►**Go to step 4**

- OVHT ENG NAC message **blanks**:
  Run the engine at reduced thrust to keep the OVHT ENG NAV message from showing.
  ►►**Go to step 4**

4 Transponder mode selector..... TA / TA ONLY

5 Do **not** accomplish the following checklists:
BLEED OFF
ENG SHUTDOWN

■■■■

>SMOKE CREW REST

B-2409, B-2475, B-2476

Condition: Smoke detected in upper deck crew rest area.

■■■■

休息室烟雾）
>SMOKE LAVATORY（>盥洗室烟雾）

>SMOKE LAVATORY

B-2456/ 58

Condition: Smoke detected in a lavatory.

■■■■

Smoke or Fumes Removal

Condition: Smoke or fumes removal is needed.

Objective: To remove smoke or fumes through the smoke override valve, or the smoke evacuation port.

1 Do this checklist **only** when directed by the Smoke, Fire or Fumes checklist.

2 Do not delay landing in an attempt to complete the following steps.

3 EQUIP COOLING selector ..... OVRD
This attempts to discharge the smoke or fumes overboard by using the equipment cooling override mode.

▼ Continued on next page ▼

▼ Smoke or Fumes Removal continued ▼

4 Choose one:

- Smoke or fumes does **not** persist and is **not** severe:

  ►►**Go to the Smoke, Fire or Fumes checklist on page 8.7 and do the remaining steps.**

  ■■■■

- Smoke or fumes **persists or** is **severe** and the smoke or fumes source is determined to be on the **flight deck**:

  Pull the smoke evacuation handle. Pulling the smoke evacuation handle when smoke or fumes source is not on the flight deck may bring the smoke or fumes into the flight deck.

  ►► **Go to the Smoke, Fire or Fumes checklist on page 8.7 and do the remaining steps.**

  ■■■■

- Smoke or fumes **persists or** is **severe** and the smoke or fumes source is determined to be in the **cabin**:

  ►► **Go to step 6**

5 LDG ALT switch ..... MAN

▼ Continued on next page ▼

▼ Smoke or Fumes Removal continued ▼

6 LDG ALT selector ..... Set the landing altitude between 8,000 and 8,500 feet to command the cabin altitude to 8,000 feet

7 EQUIP COOLING selector ..... NORM

8 Start a descent. Level off at the lowest safe altitude or 8,500 feet, whichever is higher.

9 OUTFLOW VALVES MAN switches（(both)） ..... ON

10 OUTFLOW VALVES manual control ..... OPEN

11 Do **not** accomplish the following checklists:

CABIN ALT AUTO

LANDING ALT

OUTFLOW VLV L, R

12 Return to the **Smoke, Fire or Fumes** checklist on page 8.7 and complete the remaining steps.

Table of Contents

Table of Contents

Intentionally
Blank

FMC LEFT, RIGHT

Condition: An FMC is failed.

Note: If two FMC failed at the same time, select HDG SEL and ALT HLD to avoid deviate from the designed flight level in the RVSM space.

FMC LEFT, RIGHT（FMC 左、右）

1 Choose one:

- **A single** FMC is failed:

  FMC master selector.....Select operable FMC

  Reengage the autothrottle.

  NAV SOURCE selector.....Select operable FMC

  ■■■■

- **Both** FMCs are failed:

  ►►**Go to step 2**

2 NAV SOURCE
Selector (Captain) ..... CDU L or CDU C

3 NAV SOURCE
Selector (First Officer) ..... CDU R or CDU C

4 **B-2477/ 78**:

Choose one:

- Airplane position **is** north of 73° N latitude **or** south of 60° S latitude:

  HDG reference switch..... TRUE

  ►►**Go to step 6**

- Airplane position is not in the above regions:

  ►►**Go to step 6**

▼ Continued on next page▼

▼ FMC LEFT, RIGHT continued ▼

5 **B-2409/ 56/ 58/ 75/ 76**:

Choose one:

- Airplane position **is** north of 82° N latitude（or north of 70° N between 80° W and 130° W）**or** south of 82° S latitude（or south of 60° S between 120° E and 160° E）
  HDG reference switch ..... TRUE
  ►►**Go to step 6**

- Airplane position in **not** in the above regions:
  ►►**Go to step 6**

6 Engage heading select or heading hold mode as needed.

7 Route modifications must be entered into all three CDUs. Enter any new waypoints by latitude and longitude.

8 Manually tune navigation radios through CDUs.

9 LDG ALT switch ..... MAN

10 LDG ALT selector ..... Set the landing altitude

11 The autothrottle is inoperative.

12 Do **not** accomplish the following checklist:
LANDING ALT

■■■■

>FMC MESSAGE

Condition: An alert message is in the FMC scratchpad.

>FMC RUNWAY DIS

B-2409

Condition: Airplane position or heading not lined up within specified limits of active FMC departure runway and takeoff thrust applied.

>GPS

Condition: Both GPS receivers are failed.

>GPS LEFT, RIGHT

Condition: One GPS receiver is failed.

ILS ANTENNA

Condition: An ILS receiver does not use the correct antenna.

Threshold clearance may be reduced.

IRS CENTER, LEFT, RIGHT

Condition : An IRU fault occurs.

1 IRS SOURCE selector .....Select operable IRU

Action is not reversible

2 ⚠ IRS mode

selector (affected IRU).....Confirm.....ATT

Maintain straight and level, constant airspeed flight until attitude displays recover (approximately 30 seconds).

3 Choose one:

- IRS message **blanks**:

  Enter the current heading on the SET IRS HEADING line of the CDU position initialization page. Maintain straight and level flight while entering the heading.

  The IRS heading may have to be updated periodically.

  ■■■■

- IRS message **stays shown**:

  ►►Go to step 4

Action is not reversible

4 ⚠ IRS mode

selector (affected IRU).....Confirm.....OFF

■■■■

>IRS AC CENTER, LEFT, RIGHT

Condition: IRU AC power is failed.

■■■■

>IRS DC CENTER, LEFT, RIGHT

Condition: IRU backup DC power is failed.

■■■■

IRS MOTION

Condition: Airplane motion is detected while the IRS aligns.

1 Stop airplane motion until IRS alignment is complete.
2 Verify that the position is correct and reenter if needed.

■■■■

>SNGL SOURCE ILS

Condition: Both pilots' displays use the same ILS source.

■■■■

>TRANSPONDER L, R

Condition : A transponder fault occurs.

■■■■

UNABLE RNP

Condition: The actual navigational performance is not sufficient.

1 Choose one:

- On the **ground**:
  The message may show with GPS inhibited.

  ■■■■

- On procedure or airway that **has an RNP alerting requirement**:
  Select an alternate procedure or airway.
  During an approach, go-around unless suitable visual references can be established and maintained.

  ■■■■

- On procedure or airway **without** an RNP alerting requirement:
  Verify position.

  ■■■■